



SEQUENCE LISTING

<110> Hammock, Bruce D.
Kim, In-Hae
Morisseau, Christophe
Watanabe, Takaho
Newman, John W.
The Regents of the University of California

<120> Improved Inhibitors for the Soluble Epoxide Hydrolase

<130> 02307W-131010US

<140> US 10/817,334
<141> 2004-04-02

<150> US 60/460,559
<151> 2003-04-03

<160> 4

<170> PatentIn Ver. 2.1

<210> 1
<211> 555
<212> PRT
<213> Homo sapiens

<220>
<223> human soluble epoxide hydrolase (sEH)

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Pro Arg Gly Leu Leu Asn Asp Ala Phe Gln Lys Gly Gly Pro Glu Gly
35 40 45
Ala Thr Thr Arg Leu Met Lys Gly Glu Ile Thr Leu Ser Gln Trp Ile
50 55 60
Pro Leu Met Glu Glu Asn Cys Arg Lys Cys Ser Glu Thr Ala Lys Val
65 70 75 80
Cys Leu Pro Lys Asn Phe Ser Ile Lys Glu Ile Phe Asp Lys Ala Ile
85 90 95
Ser Ala Arg Lys Ile Asn Arg Pro Met Leu Gln Ala Ala Leu Met Leu
100 105 110
Arg Lys Lys Gly Phe Thr Thr Ala Ile Leu Thr Asn Thr Trp Leu Asp
115 120 125
Asp Arg Ala Glu Arg Asp Gly Leu Ala Gln Leu Met Cys Glu Leu Lys
130 135 140
Met His Phe Asp Phe Leu Ile Glu Ser Cys Gln Val Gly Met Val Lys
145 150 155 160

Pro Glu Pro Gln Ile Tyr Lys Phe Leu Leu Asp Thr Leu Lys Ala Ser
 165 170 175
 Pro Ser Glu Val Val Phe Leu Asp Asp Ile Gly Ala Asn Leu Lys Pro
 180 185 190
 Ala Arg Asp Leu Gly Met Val Thr Ile Leu Val Gln Asp Thr Asp Thr
 195 200 205
 Ala Leu Lys Glu Leu Glu Lys Val Thr Gly Ile Gln Leu Leu Asn Thr
 210 215 220
 Pro Ala Pro Leu Pro Thr Ser Cys Asn Pro Ser Asp Met Ser His Gly
 225 230 235 240
 Tyr Val Thr Val Lys Pro Arg Val Arg Leu His Phe Val Glu Leu Gly
 245 250 255
 Ser Gly Pro Ala Val Cys Leu Cys His Gly Phe Pro Glu Ser Trp Tyr
 260 265 270
 Ser Trp Arg Tyr Gln Ile Pro Ala Leu Ala Gln Ala Gly Tyr Arg Val
 275 280 285
 Leu Ala Met Asp Met Lys Gly Tyr Gly Glu Ser Ser Ala Pro Pro Glu
 290 295 300
 Ile Glu Glu Tyr Cys Met Glu Val Leu Cys Lys Glu Met Val Thr Phe
 305 310 315 320
 Leu Asp Lys Leu Gly Leu Ser Gln Ala Val Phe Ile Gly His Asp Trp
 325 330 335
 Gly Gly Met Leu Val Trp Tyr Met Ala Leu Phe Tyr Pro Glu Arg Val
 340 345 350
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 355 360 365
 Met Ser Pro Leu Glu Ser Ile Lys Ala Asn Pro Val Phe Asp Tyr Gln
 370 375 380
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 385 390 395 400
 Leu Ser Arg Thr Phe Lys Ser Leu Phe Arg Ala Ser Asp Glu Ser Val
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 420 425 430
 Pro Glu Glu Pro Ser Leu Ser Arg Met Val Thr Glu Glu Glu Ile Gln
 435 440 445
 Phe Tyr Val Gln Gln Phe Lys Lys Ser Gly Phe Arg Gly Pro Leu Asn
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 Trp Tyr Arg Asn Met Glu Arg Asn Trp Lys Trp Ala Cys Lys Ser Leu
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Gly Arg Lys Ile Leu Ile Pro Ala Leu Met Val Thr Ala Glu Lys Asp
 485 490 495
 Phe Val Leu Val Pro Gln Met Ser Gln His Met Glu Asp Trp Ile Pro
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 His Leu Lys Arg Gly His Ile Glu Asp Cys Gly His Trp Thr Gln Met
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 Asp Ala Arg Asn Pro Pro Val Val Ser Lys Met
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 <213> Rattus norvegicus

<220>
 <223> rat soluble epoxide hydrolase (sEH)

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 35 40 45
 Pro Thr Glu Gln Leu Met Lys Gly Lys Ile Thr Phe Ser Gln Trp Val
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 Pro Leu Met Asp Glu Ser Cys Arg Lys Ser Ser Lys Ala Cys Gly Ala
 65 70 75 80
 Ser Leu Pro Glu Asn Phe Ser Ile Ser Glu Ile Phe Ser Gln Ala Met
 85 90 95
 Ala Ala Arg Ser Ile Asn Arg Pro Met Leu Gln Ala Ala Ala Ala Leu
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 Lys Lys Lys Gly Phe Thr Thr Cys Ile Val Thr Asn Asn Trp Leu Asp
 115 120 125
 Asp Ser Asp Lys Arg Asp Ile Leu Ala Gln Met Met Cys Glu Leu Ser
 130 135 140
 Gln His Phe Asp Phe Leu Ile Glu Ser Cys Gln Val Gly Met Ile Lys
 145 150 155 160
 Pro Glu Pro Gln Ile Tyr Lys Phe Val Leu Asp Thr Leu Lys Ala Lys
 165 170 175
 Pro Asn Glu Val Val Phe Leu Asp Asp Phe Gly Ser Asn Leu Lys Pro
 180 185 190

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Arg | Asp | Met | Gly | Met | Val | Thr | Ile | Leu | Val | Arg | Asp | Thr | Ala | Ser | 195 | 200 | 205 |
| Ala | Leu | Arg | Glu | Leu | Glu | Lys | Val | Thr | Gly | Thr | Gln | Phe | Pro | Glu | Ala | 210 | 215 | 220 |
| Pro | Leu | Pro | Val | Pro | Cys | Ser | Pro | Asn | Asp | Val | Ser | His | Gly | Tyr | Val | 225 | 230 | 235 |
| Thr | Val | Lys | Pro | Gly | Ile | Arg | Leu | His | Phe | Val | Glu | Met | Gly | Ser | Gly | 245 | 250 | 255 |
| Pro | Ala | Ile | Cys | Leu | Cys | His | Gly | Phe | Pro | Glu | Ser | Trp | Phe | Ser | Trp | 260 | 265 | 270 |
| Arg | Tyr | Gln | Ile | Pro | Ala | Leu | Ala | Gln | Ala | Gly | Phe | Arg | Val | Leu | Ala | 275 | 280 | 285 |
| Ile | Asp | Met | Lys | Gly | Tyr | Gly | Asp | Ser | Ser | Ser | Pro | Pro | Glu | Ile | Glu | 290 | 295 | 300 |
| Glu | Tyr | Ala | Met | Glu | Leu | Leu | Cys | Glu | Glu | Met | Val | Thr | Phe | Leu | Asn | 305 | 310 | 315 |
| Lys | Leu | Gly | Ile | Pro | Gln | Ala | Val | Phe | Ile | Gly | His | Asp | Trp | Ala | Gly | 325 | 330 | 335 |
| Val | Leu | Val | Trp | Asn | Met | Ala | Leu | Phe | His | Pro | Glu | Arg | Val | Arg | Ala | 340 | 345 | 350 |
| Val | Ala | Ser | Leu | Asn | Thr | Pro | Leu | Met | Pro | Pro | Asn | Pro | Glu | Val | Ser | 355 | 360 | 365 |
| Pro | Met | Glu | Val | Ile | Arg | Ser | Ile | Pro | Val | Phe | Asn | Tyr | Gln | Leu | Tyr | 370 | 375 | 380 |
| Phe | Gln | Glu | Pro | Gly | Val | Ala | Glu | Ala | Glu | Leu | Glu | Lys | Asn | Met | Ser | 385 | 390 | 395 |
| Arg | Thr | Phe | Lys | Ser | Phe | Phe | Arg | Thr | Ser | Asp | Asp | Met | Gly | Leu | Leu | 405 | 410 | 415 |
| Thr | Val | Asn | Lys | Ala | Thr | Glu | Met | Gly | Gly | Ile | Leu | Val | Gly | Thr | Pro | 420 | 425 | 430 |
| Glu | Asp | Pro | Lys | Val | Ser | Lys | Ile | Thr | Thr | Glu | Glu | Glu | Ile | Glu | Tyr | 435 | 440 | 445 |
| Tyr | Ile | Gln | Gln | Phe | Lys | Lys | Ser | Gly | Phe | Arg | Gly | Pro | Leu | Asn | Trp | 450 | 455 | 460 |
| Tyr | Arg | Asn | Thr | Glu | Arg | Asn | Trp | Lys | Trp | Ser | Cys | Lys | Ala | Leu | Gly | 465 | 470 | 475 |
| Arg | Lys | Ile | Leu | Val | Pro | Ala | Leu | Met | Val | Thr | Ala | Glu | Lys | Asp | Ile | 485 | 490 | 495 |
| Val | Leu | Arg | Pro | Glu | Met | Ser | Lys | Asn | Met | Glu | Asn | Trp | Ile | Pro | Phe | 500 | 505 | 510 |

Leu Lys Arg Gly His Ile Glu Asp Cys Gly His Trp Thr Gln Ile Glu
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Lys Pro Ala Glu Val Asn Gln Ile Leu Ile Lys Trp Leu Lys Thr Glu
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Ile Gln Asn Pro Ser Val Thr Ser Lys Ile
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<210> 3

<211> 554

<212> PRT

<213> Mus musculus

<220>

<223> mouse liver soluble epoxide hydrolase (sEH)

<400> 3

Met Ala Leu Arg Val Ala Ala Phe Asp Leu Asp Gly Val Leu Ala Leu
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Pro Ser Ile Ala Gly Ala Phe Arg Arg Ser Glu Glu Ala Leu Ala Leu
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Pro Arg Asp Phe Leu Leu Gly Ala Tyr Gln Thr Glu Phe Pro Glu Gly
35 40 45

Pro Thr Glu Gln Leu Met Lys Gly Lys Ile Thr Phe Ser Gln Trp Val
50 55 60

Pro Leu Met Asp Glu Ser Tyr Arg Lys Ser Ser Lys Ala Cys Gly Ala
65 70 75 80

Asn Leu Pro Glu Asn Phe Ser Ile Ser Gln Ile Phe Ser Gln Ala Met
85 90 95

Ala Ala Arg Ser Ile Asn Arg Pro Met Leu Gln Ala Ala Ile Ala Leu
100 105 110

Lys Lys Lys Gly Phe Thr Thr Cys Ile Val Thr Asn Asn Trp Leu Asp
115 120 125

Asp Gly Asp Lys Arg Asp Ser Leu Ala Gln Met Met Cys Glu Leu Ser
130 135 140

Gln His Phe Asp Phe Leu Ile Glu Ser Cys Gln Val Gly Met Ile Lys
145 150 155 160

Pro Glu Pro Gln Ile Tyr Asn Phe Leu Leu Asp Thr Leu Lys Ala Lys
165 170 175

Pro Asn Glu Val Val Phe Leu Asp Asp Phe Gly Ser Asn Leu Lys Pro
180 185 190

Ala Arg Asp Met Gly Met Val Thr Ile Leu Val His Asn Thr Ala Ser
195 200 205

Ala Leu Arg Glu Leu Glu Lys Val Thr Gly Thr Gln Phe Pro Glu Ala
210 215 220

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Leu | Pro | Val | Pro | Cys | Asn | Pro | Asn | Asp | Val | Ser | His | Gly | Tyr | Val |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Thr | Val | Lys | Pro | Gly | Ile | Arg | Leu | His | Phe | Val | Glu | Met | Gly | Ser | Gly |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Pro | Ala | Leu | Cys | Leu | Cys | His | Gly | Phe | Pro | Glu | Ser | Trp | Phe | Ser | Trp |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Arg | Tyr | Gln | Ile | Pro | Ala | Leu | Ala | Gln | Ala | Gly | Phe | Arg | Val | Leu | Ala |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Ile | Asp | Met | Lys | Gly | Tyr | Gly | Asp | Ser | Ser | Ser | Pro | Pro | Glu | Ile | Glu |
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| Glu | Tyr | Ala | Met | Glu | Leu | Leu | Cys | Lys | Glu | Met | Val | Thr | Phe | Leu | Asp |
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| Lys | Leu | Gly | Ile | Pro | Gln | Ala | Val | Phe | Ile | Gly | His | Asp | Trp | Ala | Gly |
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| Val | Ala | Ser | Leu | Asn | Thr | Pro | Phe | Met | Pro | Pro | Asp | Pro | Asp | Val | Ser |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Pro | Met | Lys | Val | Ile | Arg | Ser | Ile | Pro | Val | Phe | Asn | Tyr | Gln | Leu | Tyr |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Phe | Gln | Glu | Pro | Gly | Val | Ala | Glu | Ala | Glu | Leu | Glu | Lys | Asn | Met | Ser |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Arg | Thr | Phe | Lys | Ser | Phe | Phe | Arg | Ala | Ser | Asp | Glu | Thr | Gly | Phe | Ile |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Val | His | Lys | Ala | Thr | Glu | Ile | Gly | Gly | Ile | Leu | Val | Asn | Thr | Pro |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Asp | Pro | Asn | Leu | Ser | Lys | Ile | Thr | Thr | Glu | Glu | Glu | Ile | Glu | Phe |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Tyr | Ile | Gln | Gln | Phe | Lys | Lys | Thr | Gly | Phe | Arg | Gly | Pro | Leu | Asn | Trp |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Tyr | Arg | Asn | Thr | Glu | Arg | Asn | Trp | Lys | Trp | Ser | Cys | Lys | Gly | Leu | Gly |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| Arg | Lys | Ile | Leu | Val | Pro | Ala | Leu | Met | Val | Thr | Ala | Glu | Lys | Asp | Ile |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Val | Leu | Arg | Pro | Glu | Met | Ser | Lys | Asn | Met | Glu | Lys | Trp | Ile | Pro | Phe |
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Val Gln Asn Pro Ser Val Thr Ser Lys Ile
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<210> 4

<211> 536

<212> PRT

<213> Mus musculus

<220>

<223> mouse ovary soluble epoxide hydrolase (sEH)

<400> 4

Met Arg Phe Ala Ala Met Ala Ala Phe Ser Val Phe Phe Val Ser Lys
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Gly Leu Leu Met Asn Ser Asn Ile Trp Cys Val Gly Gln Glu Gly Pro
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Ser Gln Glu Asp Thr Asp Thr Ile His Thr Ser Glu Trp Val Pro Leu
 35 40 45

Met Asp Glu Ser Tyr Arg Lys Ser Ser Lys Ala Cys Gly Ala Asn Leu
 50 55 60

Pro Glu Asn Phe Ser Ile Ser Gln Ile Phe Ser Gln Ala Met Ala Ala
 65 70 75 80

Arg Ser Ile Asn Arg Pro Met Leu Gln Ala Ala Ile Ala Leu Lys Lys
 85 90 95

Lys Gly Phe Thr Thr Cys Ile Val Thr Asn Asn Trp Leu Asp Asp Gly
 100 105 110

Asp Lys Arg Asp Ser Leu Ala Gln Met Met Cys Glu Leu Ser Gln His
 115 120 125

Phe Asp Phe Leu Ile Glu Ser Cys Gln Val Gly Met Ile Lys Pro Glu
 130 135 140

Pro Gln Ile Tyr Asn Phe Leu Leu Asp Thr Leu Lys Ala Lys Pro Asn
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Glu Val Val Phe Leu Asp Asp Phe Gly Ser Asn Leu Lys Pro Ala Arg
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Asp Met Gly Met Val Thr Ile Leu Val His Asn Thr Ala Ser Ala Leu
 180 185 190

Arg Glu Leu Glu Lys Val Thr Gly Thr Gln Phe Pro Glu Ala Pro Leu
 195 200 205

Pro Val Pro Cys Asn Pro Asn Asp Val Ser His Gly Tyr Val Thr Val
 210 215 220

Lys Pro Gly Ile Arg Leu His Phe Val Glu Met Gly Ser Gly Pro Ala
 225 230 235 240

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Cys | Leu | Cys | His | Gly | Phe | Pro | Glu | Ser | Trp | Phe | Ser | Trp | Arg | Tyr | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Gln | Ile | Pro | Ala | Leu | Ala | Gln | Ala | Gly | Phe | Arg | Val | Leu | Ala | Ile | Asp | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| Met | Lys | Gly | Tyr | Gly | Asp | Ser | Ser | Ser | Pro | Pro | Glu | Ile | Glu | Glu | Tyr | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| Ala | Met | Glu | Leu | Leu | Cys | Lys | Glu | Met | Val | Thr | Phe | Leu | Asp | Lys | Leu | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Gly | Ile | Pro | Gln | Ala | Val | Phe | Ile | Gly | His | Asp | Trp | Ala | Gly | Val | Met | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Val | Trp | Asn | Met | Ala | Leu | Phe | Tyr | Pro | Glu | Arg | Val | Arg | Ala | Val | Ala | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| Ser | Leu | Asn | Thr | Pro | Phe | Met | Pro | Pro | Asp | Pro | Asp | Val | Ser | Pro | Met | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| Lys | Val | Ile | Arg | Ser | Ile | Pro | Val | Phe | Asn | Tyr | Gln | Leu | Tyr | Phe | Gln | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| Glu | Pro | Gly | Val | Ala | Glu | Ala | Glu | Leu | Glu | Lys | Asn | Met | Ser | Arg | Thr | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| Phe | Lys | Ser | Phe | Phe | Arg | Ala | Ser | Asp | Glu | Thr | Gly | Phe | Ile | Ala | Val | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| His | Lys | Ala | Thr | Glu | Ile | Gly | Gly | Ile | Leu | Val | Asn | Thr | Pro | Glu | Asp | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| Pro | Asn | Leu | Ser | Lys | Ile | Thr | Thr | Glu | Glu | Glu | Ile | Glu | Phe | Tyr | Ile | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| Gln | Gln | Phe | Lys | Lys | Thr | Gly | Phe | Arg | Gly | Pro | Leu | Asn | Trp | Tyr | Arg | |
| | | 435 | | | | | 440 | | | | | 445 | | | | |
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| | | 450 | | | | 455 | | | | | 460 | | | | | |
| Ile | Leu | Val | Pro | Ala | Leu | Met | Val | Thr | Ala | Glu | Lys | Asp | Ile | Val | Leu | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | |
| Arg | Pro | Glu | Met | Ser | Lys | Asn | Met | Glu | Lys | Trp | Ile | Pro | Phe | Leu | Lys | |
| | | | | 485 | | | | | 490 | | | | | 495 | | |
| Arg | Gly | His | Ile | Glu | Asp | Cys | Gly | His | Trp | Thr | Gln | Ile | Glu | Lys | Pro | |
| | | | 500 | | | | | 505 | | | | | 510 | | | |
| Thr | Glu | Val | Asn | Gln | Ile | Leu | Ile | Lys | Trp | Leu | Gln | Thr | Glu | Val | Gln | |
| | | 515 | | | | | 520 | | | | | 525 | | | | |
| Asn | Pro | Ser | Val | Thr | Ser | Lys | Ile | | | | | | | | | |
| | 530 | | | | | 535 | | | | | | | | | | |



Entrez

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default

Show: 20

Send to

File

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Feat

☐ 1: AAA37555. epoxide hydrolase...[gi:441071]

BLink, Domains, Links

LOCUS AAA37555 554 aa linear ROD 14-JAN-1994

DEFINITION epoxide hydrolase.

ACCESSION AAA37555

VERSION AAA37555.1 GI:441071

DBSOURCE locus MUSEPOHYDR accession L05781.1

KEYWORDS

SOURCE Mus musculus (house mouse)

ORGANISM Mus musculus

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

REFERENCE 1 (residues 1 to 554)

AUTHORS Grant,D.F., Storms,D.H. and Hammock,B.D.

TITLE Molecular cloning and expression of murine liver soluble epoxide
hydrolase

JOURNAL J. Biol. Chem. 268 (23), 17628-17633 (1993)

MEDLINE 93352558

PUBMED 8349642

COMMENT Method: conceptual translation.

FEATURES

source

Location/Qualifiers

1..554

/organism="Mus musculus"

/strain="Swiss Webster"

/sub_species="domesticus"

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/germline

Protein

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/product="epoxide hydrolase"

CDS

1..554

/coded_by="L05781.1:1..1665"

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241 tvkpgirlhf vemgsgpalc lchgfpeswf swryqipala qagfrvlaid mkggydsssp
301 peieeyamel lckemvtfld klqipqavfi ghdwagvmvw nmalfyperv ravaslntpf
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421 ateiggilvn tpedpnlski tteeeiefyi qqfkkgtgrg plnwyrnter nkwscckglg
481 rkilvpalmv taekdivlrp emsknmekwi pflkrghied cghwtqiekp tevnqilikw
541 lqtevqnpsv tski
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Aug 4 2004 12:36:34



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Entrez PubMed

Nucleotide

Protein

Genome

Structure

PMC

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Search Protein

for

Go

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Limits

Preview/Index

History

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Details

Display

default

Show: 20

Send to

File

Get Subsequence

Feat

☐ 1: P80299. Soluble epoxide h...[gi:462371]

BLink, Domains, Links

LOCUS P80299 554 aa linear ROD 15-JUN-2004

DEFINITION Soluble epoxide hydrolase (SEH) (Epoxide hydratase) (Cytosolic epoxide hydrolase) (CEH).

ACCESSION P80299

VERSION P80299 GI:462371

DBSOURCE swissprot: locus HYES_RAT, accession P80299;

class: standard.

created: Feb 1, 1994.

sequence updated: Feb 1, 1994.

annotation updated: Jun 15, 2004.

xrefs: gi: 402631, gi: 402632, gi: 55929, gi: 55930, gi: 477003

xrefs (non-sequence databases): HSSPP34914, MEROPSS33.973,

InterProIPR000073, InterProIPR003089, InterProIPR000639,

InterProIPR006402, InterProIPR005833, InterProIPR005834,

InterProIPR000379, PfamPF00561, PfamPF00702, PRINTSPR00111,

PRINTSPR00412, PRINTSPR00413, TIGRFAMsTIGR01509

KEYWORDS Hydrolase; Peroxisome; Detoxification; Aromatic hydrocarbons catabolism; Direct protein sequencing.

SOURCE Rattus norvegicus (Norway rat)

ORGANISM Rattus norvegicus

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;

Rattus.

REFERENCE 1 (residues 1 to 554)

AUTHORS Knehr,M., Thomas,H., Arand,M., Gebel,T., Zeller,H.D. and Oesch,F.

TITLE Isolation and characterization of a cDNA encoding rat liver cytosolic epoxide hydrolase and its functional expression in Escherichia coli

J. Biol. Chem. 268 (23), 17623-17627 (1993)

MEDLINE 93352557

PUBMED 8349641

REMARK SEQUENCE FROM N.A.

STRAIN=Sprague-Dawley; TISSUE=Liver

REFERENCE 2 (residues 1 to 554)

AUTHORS Arand,M., Knehr,M., Thomas,H., Zeller,H.D. and Oesch,F.

TITLE An impaired peroxisomal targeting sequence leading to an unusual bicompartamental distribution of cytosolic epoxide hydrolase

JOURNAL FEBS Lett. 294 (1-2), 19-22 (1991)

MEDLINE 92077134

PUBMED 1743286

REMARK SEQUENCE OF 450-554 FROM N.A., AND PARTIAL SEQUENCE.

TISSUE=Liver

COMMENT

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. The original entry is available from <http://www.expasy.ch/sprot> and <http://www.ebi.ac.uk/sprot>

[FUNCTION] This enzyme acts on epoxides (alkene oxides, oxiranes) and arene oxides. Plays a role in xenobiotic metabolism by degrading potential toxic epoxides. Also determines steady-state levels of physiological mediators.

[CATALYTIC ACTIVITY] An epoxide + H(2)O = a glycol.

[SUBUNIT] Homodimer.

[SUBCELLULAR LOCATION] Cytoplasmic and peroxisomal.

[INDUCTION] By compounds that cause peroxisome proliferation such as clofibrate, tiadenol and fenofibrate.

[SIMILARITY] Belongs to the AB hydrolase superfamily. Epoxide hydrolase family.

| FEATURES | Location/Qualifiers |
|----------|---|
| source | 1..554 /organism="Rattus norvegicus" /db_xref="taxon:10116" |
| gene | 1..554 /gene="EPHX2" |
| Protein | 1..554 /gene="EPHX2" /product="Soluble epoxide hydrolase" /EC_number="3.3.2.3" |
| Site | 333 /gene="EPHX2" /site_type="active" /note="By similarity." |
| Site | 495 /gene="EPHX2" /site_type="active" /note="By similarity." |
| Site | 523 /gene="EPHX2" /site_type="active" /note="By similarity." |
| Site | 552..554 /gene="EPHX2" /site_type="unclassified" /note="Microbody targeting signal (Potential)." |

ORIGIN

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1 malrvaafdl dgvlalpsia gvlrhteeal alprdfllga fqmkfpegpt eqlmkgkitf
61 sqwvplmdes crksskacga slpenfsise ifsqamaars inrpmlqaaa alkkkgfttc
121 ivtnnwldds dkrdilaqmm celsqhfdfl iescqvgmik pepqiykfv dtlkakpnev
181 vflddfgsnl kpardmgmvt ilvrdatasal relekvtgtq fpeaplpvpc spndvshgyv
241 tvkpgirlhf vemgsgpaic lchgfeswf swryqipala qagfrvlaid mkggydsssp
301 peieeyamel lceemvtfln klqipqavfi ghdwagvlvw nmalfhperv ravaslntpl
361 mppnpevspm evirsipvfn yqlyfqepgv aeaeleknms rtfksffrts ddmglitvkn
421 atemggilvg tpedpkvski tteeeieyyi qqfkksgfrg plnwyrnter nkwksckalg
481 rkilvpalmv taekdivlrp emsknmenwi pflkrghied cghwtqiekp aevnqilikw
541 lkteiqnpsv tski
```

//

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Entrez

PubMed

Nucleotide

Protein

Genome

Structure

PMC

Taxonomy

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for

Protein

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Clear

Limits

Preview/Index

History

Clipboard

Details

Display

default

Show: 20

Send to

File

Get Subsequence

Feat

☐ 1: JC4711. epoxide hydrolase...[gi:2135082]

BLink, Domains, Links

LOCUS JC4711 555 aa linear PRI 17-MAR-2000
 DEFINITION epoxide hydrolase (EC 3.3.2.3) 2, cytosolic - human.
 ACCESSION JC4711
 VERSION JC4711 GI:2135082
 DBSOURCE pir: locus JC4711;

summary: #length 555 #molecular-weight 62615 #checksum 7933
 ;
 genetic: #gene GDB:EPHX2 ##cross-references GDB:371845; OMIM:132811
 #map_position 8p21-8p12 #introns 34/2; 62/3; 116/1; 179/3; 220/3;
 245/3; 277/3; 304/1; 315/3; 324/3; 353/2; 390/3; 414/3; 426/1;
 460/3; 483/3; 510/3; 530/ 2
 ;
 PIR dates: 16-Aug-1996 #sequence_revision 16-Aug-1996 #text_change
 17-Mar-2000

KEYWORDS aromatic hydrocarbon catabolism; detoxification; ether hydrolase;
 liver.
 SOURCE Homo sapiens (human)
 ORGANISM Homo sapiens
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
 REFERENCE 1 (residues 1 to 555)
 AUTHORS Beetham, J.K., Tian, T. and Hammock, B.D.
 TITLE cDNA cloning and expression of a soluble epoxide hydrolase from
 human liver
 JOURNAL Arch. Biochem. Biophys. 305 (1), 197-201 (1993)
 MEDLINE 93343630
 PUBMED 8342951
 REFERENCE 2 (residues 1 to 555)
 AUTHORS Sandberg, M. and Meijer, J.
 TITLE Structural characterization of the human soluble epoxide hydrolase
 gene (EPHX2)
 JOURNAL Biochem. Biophys. Res. Commun. 221 (2), 333-339 (1996)
 MEDLINE 96192049
 PUBMED 8619856
 COMMENT This enzyme is involved in the conversion of harmful
 epoxide-containing compounds into diols.

FEATURES Location/Qualifiers
 source 1..555
 /organism="Homo sapiens"
 /db_xref="taxon:9606"
Protein 1..555
 /product="epoxide hydrolase 2, cytosolic"
 /EC_number="3.3.2.3"

ORIGIN

1 mtlraavfdl dgvlalpavf gvlgrteeal alprgllnda fqkggpegat trlmkgeitl
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 121 iltntwlddr aerdglaqlm celkmhfdfl iescqvgmvk pepqiykfl1 dtlkaspsev

181 vflddiganl kpardlgmvt ilvqdttdtal kelekvtgiq llntpaplpt scnpsdmsgh
241 yvtvkprvrl hfvelgsgpa vclchgfes wyswryqipa laqagyrvla mdmkgygess
301 appeieeycm evlckemvtf ldklglsqav fighdwggml vwymalfype rvravasln
361 pfipanpnms plesikanpv fdyglyfqep gvaaeeleqn lsrtfkslfr asdesvlsmh
421 kvceagglfv nspeepsr mvteeeiqfy vqqfkksgfr gplnwyrnme rnkwacksl
481 grkilipalm vtaekdfvlv pqmsqhmedw iphlkrghie dcghwtqmdk ptevnqilik
541 wldsdarnpp vvskm

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